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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/260,794	03/01/1999	DOUGLAS S. ONDRICEK	03401.P090	6932

27520 7590 03/14/2002

FORMFACTOR, INC.  
LEGAL DEPARTMENT  
2140 RESEARCH DRIVE  
LIVERMORE, CA 94550

EXAMINER
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BREWSTER, WILLIAM M

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 03/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/260,794

Applicant(s)

ONDRICEK ET AL.

Examiner

William M. Brewster

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-12,14-34,36-38,40-44 and 46-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-12, 14-34, 36-38, 40-44, 46-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 11, 12, 16, 27-29, 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al., U.S. Patent No. 5,949,242 in view of O'Connor et al., U.S. Patent No. 5,131,535 in view of Beffa, U.S. Patent No. 6,147,316.

Wood teaches a method comprising: singulating at least one semiconductor wafer into a plurality of singulated dice; in figs. 1, 2, and 3, depositing said plurality of said singulated dice 14 unpackaged into said carrier circuit 32, depositing singulated die into said carrier, said carrier holding said singulated die with or without packaging of die, in fig.2, storing on a plurality of contact pads 16, and testing said singulated dice while deposited in said carrier, in fig. 9 mounting carrier on substrate 10E, at the timing convenience of the manufacturer, which may be a test printed circuit board and which may serve as the final package for said dice, col. 8, lines 5 - 20, with a top 42, containing a hole 60 through which a tool, including a labeling tool, may enter, over the die and at any given time, removing die and reusing test board, , col. 4, line 5 - col. 5, line 8.

Wood does not specify using a label on the carrier, but O'Connor does.

O'Connor teaches in fig. 1, labeling carrier with an identification code 8, at any time convenient to the manufacturer, in fig. 1 securing a plurality of die 32 to carrier.

O'Connor gives motivation in col. 1, lines 43-56. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining O'Connor's process with Wood's invention would have been beneficial because it reduces labor time.

O'Connor does not specify the identification code holding more than if the die is good or bad, but codes can hold more, as stated by Beffa. Beffa specifies the die ID storing wafer and lot information along with motivation in the Abstract, where lot information includes at least one origin semiconductor wafer information. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Beffa's process with Wood and O'Connor's invention would have been beneficial because it helps reduce unintended test variables when ICs are assembled.

Claims 6-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, O'Connor, and Beffa as applied to claims 1, 3, 4, 11, 12, 16, 27-29, 31 above, and further in view of Miyauchi et al., U.S. Patent No. 5,528,825, from IDS.

Wood, O'Connor, and Beffa do not teach labeling each IC with an identification code, but Miyauchi does. Miyauchi teaches in fig. 3, attaching a bar-code label 11 to an IC 10, col. 2, lines 53 - 56, at any convenient time, and further specifies that 10 may be

Art Unit: 2823

an unpackaged chip, col. 3, lines 6 - 20. Miyauchi gives motivation in col. 1, lines 53-59. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Wood, O'Connor, and Beffa's process with Miyauchi's invention would have been beneficial because one can select an IC to correct for specific variation.

Claims 14-15, 17-26, 31-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, O'Connor, and Beffa as applied to claims 1, 3, 4, 11, 12, 16, 27-29, 31 above, and further in view of Smith, U.S. Patent No. 6,184,699 B1.

Wood, O'Connor, and Beffa do not specify that his contacts are resilient, but Smith does. Smith in fig. 6, forms elongated resilient contacts 11 before mounting contacting die 3 resisting variable pressure, col. 4, lines 39 - 55, where a top mounting testing unit would apply more force during testing than after it was removed. Smith gives motivation in col. 4, lines 39-55. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Smith's process with Wood, O'Connor, and Beffa's invention would have been beneficial because it eliminates the need for uniform contact pressure.

Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, O'Connor, and Beffa as applied to claims 1, 3, 4, 11, 12, 16, 27-29, 31 above, and further in view of Kummeth et al., U.S. Patent No. 6,264,533 B1.

Wood, O'Connor, and Beffa do not specify using a magnetic media for the label, but Kummeth does in the Abstract. One of ordinary skill in the art would employ the well-known process of Kummeth for its intended purpose of using a magnetic label to achieve the equivalent feature of an optical label of Wood, O'Connor, and Beffa.

Kummeth demonstrates that a) there is an alternative process, b) it can be used to achieve the same results, and c) it has been used by those skilled in the art. For more information on equivalent processes, see MPEP §2144.06.

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Claims 34, 36, 37, 41-44, 59-60, 66-67 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al., U.S. Patent No. 5,131,535 in view of Beffa, U.S. Patent No. 6,147,316.

Wood teaches a method comprising: singulating at least one semiconductor wafer into a plurality of singulated dice; in figs. 1, 2, and 3, depositing said plurality of said singulated dice 14 unpackaged into said carrier circuit 32, depositing singulated die into said carrier, said carrier holding said singulated die with or without packaging of die, in fig.2, storing on a plurality of contact pads 16, and testing said singulated dice while deposited in said carrier, in fig. 9 mounting carrier on substrate 10E, at the timing convenience of the manufacturer, which may be a test printed circuit board and which may serve as the final package for said dice, col. 8, lines 5 - 20, with a top 42, containing a hole 60 through which a tool, including a labeling tool, may enter, over the

Art Unit: 2823

die and at any given time, removing die and reusing test board, , col. 4, line 5 - col. 5, line 8.

Wood, do not teach labeling each IC with an identification code, but Miyauchi does. Miyauchi teaches in fig. 3, attaching a bar-code label 11 to an IC 10, col. 2, lines 53 - 56, at any convenient time, and further specifies that 10 may be an unpackaged chip, col. 3, lines 6 - 20. Miyauchi gives motivation in col. 1, lines 53-59. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Wood's process with Miyauchi's invention would have been beneficial because one can select an IC to correct for specific variation.

Miyauchi does not specify the identification code holding more than if the die is good or bad, but codes can hold more, as stated by Beffa. Beffa specifies the die ID storing wafer and lot information along with motivation in the Abstract, where lot information includes at least one origin semiconductor wafer information. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Beffa's process with Wood and Miyauchi's invention would have been beneficial because it helps reduce unintended test variables when ICs are assembled.

Claims 46-58, 61-65 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Miyauchi, and Beffa as applied to claims 34, 36, 37, 41-44, 59-60, 66-67 above, and further in view of Smith, U.S. Patent No. 6,184,699 B1.

Art Unit: 2823

Wood, Miyauchi, and Beffa do not specify that his contacts are resilient, but Smith does. Smith in fig. 6, forms elongated resilient contacts 11 before mounting contacting die 3 resisting variable pressure, col. 4, lines 39 - 55, where a top mounting testing unit would apply more force during testing than after it was removed. Smith gives motivation in col. 4, lines 39-55. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Smith's process with Wood, Miyauchi, and Beffa's invention would have been beneficial because it eliminates the need for uniform contact pressure.

Claim 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Wood, Miyauchi, and Beffa as applied to claims 1, 3, 4, 11, 12, 16, 27-29, 31 above, and further in view of Kummeth et al., U.S. Patent No. 6,264,533 B1.

Wood, Miyauchi, and Beffa Farnworth does not specify using a magnetic media for the label, but Kummeth does in the Abstract. One of ordinary skill in the art would employ the well-known process of Kummeth for its intended purpose of using a magnetic label to achieve the equivalent feature of an optical label of Wood, Miyauchi, and Beffa. Kummeth demonstrates that a) there is an alternative process, b) it can be used to achieve the same results, and c) it has been used by those skilled in the art. For more information on equivalent processes, see MPEP §2144.06.



Art Unit: 2823

***Response to Arguments***

Applicant's arguments with respect to claims 1, 3-12, 14-34, 36-38, 40-44, 46-66 has been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

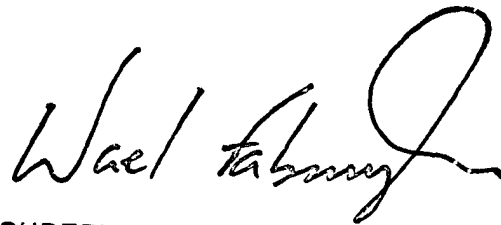
Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 703-305-5906. The examiner can normally be reached on Full Time.

Art Unit: 2823

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

WB  
6 March 2002

A handwritten signature in black ink, appearing to read 'Wael Fahmy', with a stylized, flowing script.

SUPERVISORY PRIMARY EXAMINER  
TECHNOLOGY CENTER 2800